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UNITED STATES DISTRICT COURT

DISTRICT OF NEVADA

SIGNIFY NORTH AMERICA CORPORATION and SIGNIFY HOLDING B.V.,

Plaintiffs,

vs.

LEPRO INNOVATION INC, LE INNOVATION INC, INNOVATION RULES INC., HOME EVER INC., and LETIANLIGHTING, INC.,

Defendants.

Case Number: 2:22-cv-02095-JAD-DJA

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiffs Signify North America Corporation and Signify Holding B.V. ("Signify" or "Plaintiffs") assert a total of eighty-two (82) claims in this seven-patent infringement lawsuit against Defendants LEPRO Innovation Inc., LE Innovation Inc, Innovation Rules Inc., Home Ever Inc., and Leitianlighting, Inc. (collectively "Defendants" or "Lepro"). A majority of the asserted patents were developed by Plaintiffs' competitors that Plaintiffs have since acquired through merger and acquisition. Some of the asserted patents were asserted in prior litigations. Several of the asserted patents expired long before Signify filed this lawsuit.

Lepro has not copied nor stolen Signify's patented technologies. As explained below, many of the asserted claims have a narrow scope. As is the case with many patent plaintiffs, Signify proposes that nearly all disputed terms be interpreted by their plain and ordinary meaning. For the various reasons described below, that result would be incorrect.

II. LEGAL STANDARDS

"Claim construction is a matter of law."[1] Thus, the construction of a claim limitation is a legal conclusion, as are interpretations of the patent's intrinsic evidence (the patent claims, specifications, and prosecution history).[2]

The words of a claim are generally given their ordinary and customary meaning, a meaning that "the term would have to a person of ordinary skill in the art in question at the time of the invention."[3] A "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification."[4] "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges."[5] In others, courts look to public sources such as "the words of the claims themselves, the remainder of the specification, the prosecution history, and

[1] *SIMO Holdings, Inc. v. H.K. uCloudlink Network Tech., Ltd.*, 983 F.3d 1367, 1374 (Fed. Cir. 2021).
[2] *Ultimate Pointer, L.L.C. v. Nintendo Co.*, 816 F.3d 816, 822 (Fed. Cir. 2016) (*citing Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841, 190 L. Ed. 2d 719 (2015).
[3] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).
[4] *Phillips*, 415 F.3d at 1313.
[5] *Id*. at 1314.

extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art."[6]

III. THE '336 PATENT

The '336 Patent purportedly "relates to systems and methods for generating and/or modulating illumination conditions to generate high-quality light of a desired and controllable color, for creating lighting fixtures for producing light in desirable and reproducible colors, and for modifying the color temperature or color shade of light within a prespecified range after a lighting fixture is constructed."[7] One aspect of the alleged invention pertains to the generation of simulated "high-quality white light."[8] The patent asserts that "[i]t should be clear that high-quality white light simulating black-body sources do not have significant peaks and valleys within the area of the human eye's photopic response as is shown in FIG. 13":[9]

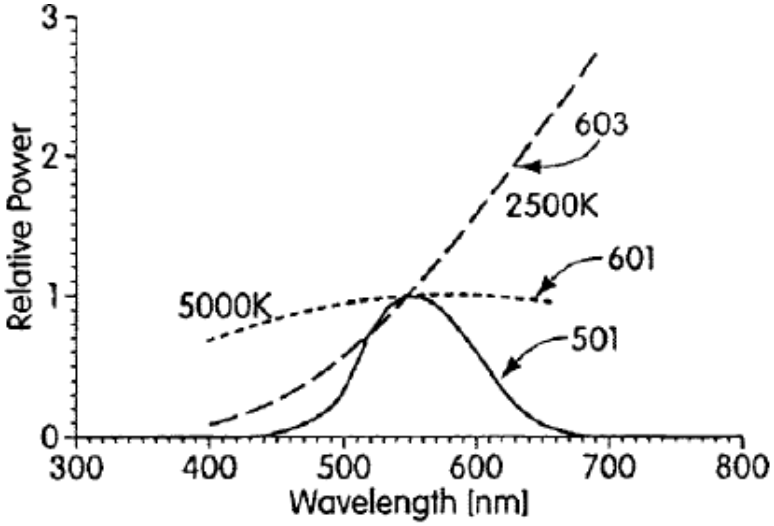

Fig. 13

According to the patent, "[m]ost artificial light, does however have some peaks and valleys in this region such shown in FIG. 27, however the less difference between these points the better":[10]

[6] *Id.*
[7] '336 Patent, Abstract.
[8] *Id.* at 20:6-30.
[9] *Id.* at 22:16-19, FIG. 13.
[10] *Id.* at 20:21-22, FIG. 27.

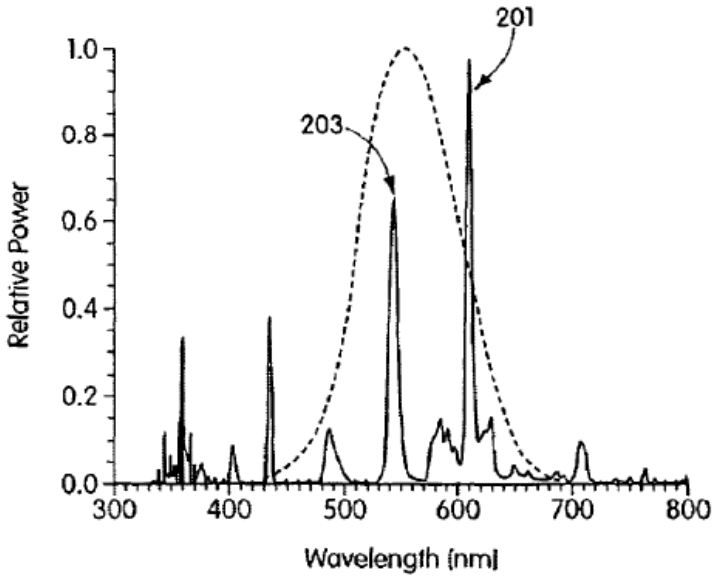

Fig. 27
(Prior Art)

Then, without otherwise defining "background noise," the patent states:[11]

> The lowest valley in the visible range should have a greater intensity than the intensity attributable to background noise as would be understood by one of skill in the art. It is further desirable to close the gap between the lowest valley and the maximum peak, and other embodiments of the invention have lowest valleys with at least 5%, 10%, 25%, 33%, 50%, and 75% of the intensity of the maximum peaks. One skilled in the art would see that other percentages could be used anywhere up to 100%.

But the patent does not explain or otherwise indicate, for example, what is considered "background noise," nor whether it is even present in FIGS. 13, 27 above, or in any of the other figures.[12] In the above text,[13] the patent attempts to compare the "intensity" of the "lowest valley" with that of the "background noise," but neither FIGS. 13, 27, nor any other figures, include any comparisons of the intensities between the lowest valleys and the background noises. In fact, there is simply no explanation how the "background noise" is compared to the "lowest valley" at all.

[11] *Id.* at 22:31-40.
[12] *See generally id.*
[13] *Id.*

A. "background noise"

Signify's Construction	Defendant's Construction (summary)
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: "electromagnetic radiation produced independent of the lighting fixture"	Indefinite

The Supreme Court provides a test for indefiniteness: "a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."[14] Without any explanation or definition of the claim term "background noise" in the '336 Patent, the term is indefinite because it meets the Supreme Court test for indefiniteness due to at least three reasons.

First, contrary to what Signify claims, "background noise" was not "a common term that would have been readily understood by a person of ordinary skill in the [LED] art at the time of invention."[15] Not surprisingly, Signify makes this unfounded, conclusory assertion without any objective support because Signify has none.[16] Signify proposes that "background noise" plainly and ordinarily mean "electromagnetic radiation produced independent of the lighting fixture."[17] But Signify does not, nor can it, point to one shred of evidence that an LED artisan would have commonly understood the term to mean what Signify proposes.[18] It appears Signify made up this meaning hoping to link it to the claim language and the accused lighting fixtures, but cannot support it at all and thus asserts only that the proposal is "consistent" with a long, vague, and *irrelevant* dictionary definition of "background noise" concerning *other fields*.[19] But probably because the dictionary definition is so far-fetched on its face, Signify does not even propose the cited dictionary definition, which discusses the "background noise" not in any LED related field but in the context of "*thermal effects in materials*, interpreted as the random

[14] *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).
[15] Op. Br. at 7.
[16] *Id.* at 9 (citing to merely a passing, self-serving statement *in the '336 patent itself* at col. 22:31-34: "the lowest valley in the visible range should have a greater intensity than the intensity attributable to background noise as would be understood by one of skill in the art") (emphasis removed).
[17] *Id.*
[18] *See generally id.* at 7-9.
[19] *Id.* at 7-8.

motion of electrons, and the intensity depends on the temperature of the material."[20] The cited dictionary definition also describes the term in the context of "*radio channels*" (again not relating to the LED art), explaining that "background noise is typically due to radiation that is inherent to the universe and due mainly to radiation from astronomical bodies."[21] The dictionary continues, "[t]here is a fundamental lower bound on the intensity of such noise which is solely dependent on the universe and independent of antenna and receiver design."[22] Glaringly absent in the dictionary definition cited by Signify is any pertinence to the LED field, nor any mention of the "electromagnetic" energy or the "lighting fixture" in Signify's proposal.[23]

Second, the supposed plain and ordinary meaning of "background noise" proposed by Signify, "electromagnetic radiation produced independent of the lighting fixture," is also indefinite itself. The proposed definition does not explain how the "electromagnetic radiation" is measured and what the source of the "electromagnetic radiation" is to take a measurement from. Under this definition, any ambient light (which Signify equates to "electromagnetic radiation" in a conclusory manner without any support) "produced independent of the lighting fixture" would be "background noise." That is, depending on the lighting conditions in the environment surrounding the "lighting fixture," the "background noise" would vary and cannot be reasonably ascertained by a person of ordinary skill in the LED art.[24] For example, the "intensity" of the "background noise" under Signify's definition would be completely different if the lighting fixture is placed under direct sunlight at noon time on a cloudless day than if the lighting fixture is placed inside a dark room without any light. As a result, the public is left to "guess" what "intensity" is or is not attributable to the "background noise," rendering the term indefinite under Signify's definition.[25]

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[20] *Id.* (emphasis added).
[21] Op. Br. at 7-8.
[22] *Id.*
[23] *Id.*
[24] *Nautilus*, 572 U.S. at 901.
[25] *See, e.g.*, *Uship Intellectual Props., LLC v. United States*, 98 Fed. Cl. 396, 420 (2011) (holding that a claim is indefinite when the public has to "guess" how the claimed system works); *see also Nautilus*, 572 U.S. at 909-10 ("[A] patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them. … Otherwise there would be a zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims.") (cleaned up).

Third, and most importantly, the '336 Patent, as Signify admits (at 7-8) does not define "background noise" and only compares its intensity with that of the "lowest valley" without explanation. This lack of definition of the term in the absence of a plain and ordinary meaning commonly agreed-upon by the LED artisans renders the term indefinite. Indeed, the patent itself suggests the intensity of the "background noise" could be anything less the "lowest [spectral] valley" that may be "at least 5%, 10%, 25%, 33%, 50%, and 75%" or even up to "100%" of the "maximum spectral peak."[26] It begs the question which percentage it should be. The patent effectively states that anything less than 100% of the "maximum spectral peak" may be the "background noise." All these numerical possibilities of the "lowest [spectral] valley" that the "background noise" is compared to in the '336 Patent itself render the term indefinite because a skilled artisan could not have reasonably ascertained it.[27]

For at least the above reasons, the claims having the term "background noise," when read in light of the specification delineating the patent, and the prosecution history," are indefinite because they "fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention."[28]

IV. THE '399 AND '138 PATENTS

The '399 and '138 patents share the same specification. The asserted claims are 7-8, 17-19, and 58-60 of the '399 patent, and 1-2, 9-11, and 20-22 of the '138 patent.

As Signify states (at 11), the patents describe circuits intended to allow LED lights to operate based on standard AC dimming circuits, which provide an AC signal with a modified duty cycle such as a "chopped" AC signal.[29] As Signify states (at 12), this is accomplished by "a controller to convert an A.C. signal with variable duty cycle into a D.C. signal suitable to drive an LED light source."

The patents describe three different types of controllers: the non-dimming controller of Figures 3-4, the dimming controller of Figures 5-6, and the processor-based controller of Figures 7-11.[30]

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[26] '336 Patent, 22:28-40.
[27] *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1364 (Fed. Cir. 2018) (holding that "minimal" is indefinite when no objective boundary defines what it means).
[28] *Nautilus*, 572 U.S. at 901.
[29] '399 patent, Abstract, 1:64-2:46, 2:57-64, FIG. 1.
[30] *Id.* at 12:32-13:67 (non-dimming), 14:1-14:49 (dimming), 14:51-20:19 (processor-based).

The controller of Figures 3-4 is labeled 204. It includes a rectifier 404 (red), a low pass filter 408 (yellow), and a DC converter 402 (blue), which provides "an essentially stable DC voltage as a power supply for the LED based light source 104, regardless of user adjustments of the dimmer."[31]

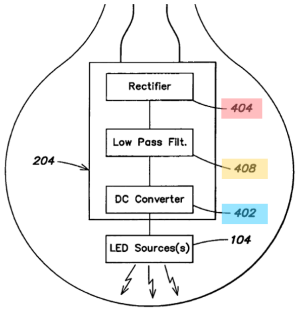

FIG. 3

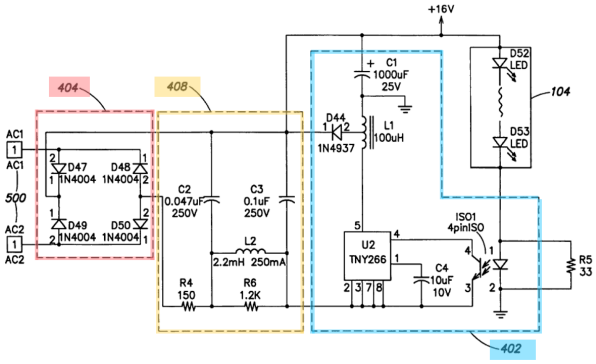

FIG. 4

In other words, when a user adjusts the dimmer to vary the A.C. input to the controller, it provides "an essentially stable DC voltage" to the LEDs so that the light does not vary or dim.[32] This first type of controller is thus referred to as a "non-dimming controller."

The controller of Figures 5-6 is labeled 204A. It includes an adjustment circuit 208 (green) in addition to a rectifier 404 (red), a low pass filter 408 (yellow), and a DC converter 402 (blue) that are "similar or identical to those shown in Figure 4."[33] The adjustment circuit provides "a variable drive current to the LED-based light source 104 that tracks adjustments of the dimmer's user interface."[34] This varies the intensity of the light from the LEDs, and this second type of controller is thus referred to as the "dimming controller."

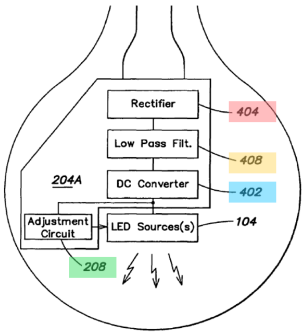

FIG. 5

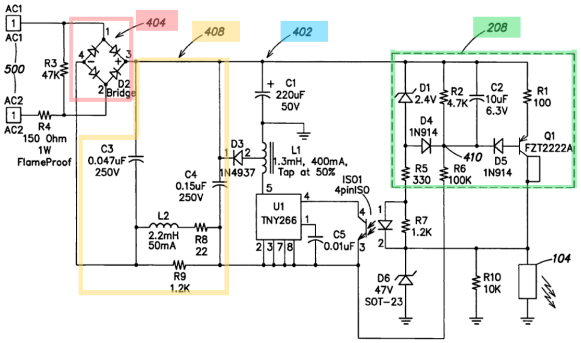

FIG. 6

[31] *Id.* at 12:61-66.
[32] *Id.* at 13:1-9.
[33] *Id.* at 14:19-23.
[34] *Id.* at 14:6-18.

The controller of Figures 7-11 is "processor-based controller 204B."[35] It includes "power circuitry 108" (purple) that "may be configured similarly to portions of the circuits shown in Figures 4 and 6."[36] Figure 8 shows this power circuitry, and like Figures 4 and 6, it includes a rectifier, the low pass filter, and DC converter. But unlike the previous controllers, the "processor-based controller 204B" adjusts the power to the LEDs using a digital processor 102 (red) and the driver circuitry 109 (orange).[37]

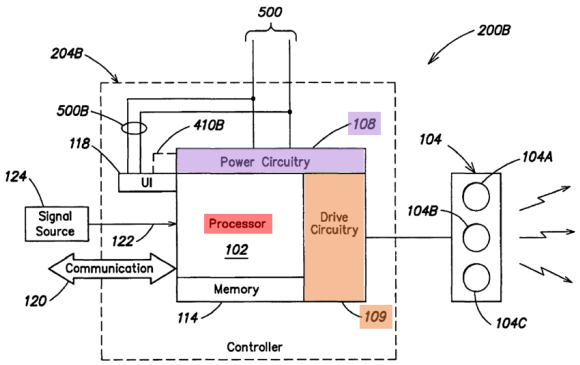

FIG. 7

The processor-based controller can be used to control LEDs in a wide variety of ways, not just by changing their intensity, but also by changing color or "temporal qualities" such as "rate of strobing of a given color, rate of change of a rainbow wash of colors, etc."[38]

A. "controller"

Signify's Construction	Defendant's Construction (summary)
Plain and ordinary meaning. (If a construction is required: "A circuit or component that controls.")	Means-plus-function term. '138 claim 1: non-dimming controller of Figure 4 and structural equivalents. '399 claims 7-8, 17, 58-60, '138 claims 9-11, 20: dimming controller of Figure 6 or processor-based controller of Figures 8-11 and structural equivalents.

Fundamentally the dispute between the parties is whether Signify is entitled to claim its alleged invention in broad functional terms. For example, Claim 1 of the '138 patent requires:

[35] *Id.* at 15:2; *see* 14:51-20:19, FIGS. 7-11.
[36] *Id.* at 18:48-50.
[37] *Id.* at 15:40-47, 17:7-11.
[38] *Id.* at 19:34-42, 20:25-39.

> An illumination apparatus, comprising:
>
> at least one LED; and
>
> at least one controller coupled to the at least one LED and configured to receive a power-related signal from an alternating current (A.C.) power source that provides signals other than a standard A.C. line voltage, the at least one controller further configured to provide power to the at least one LED based on the power-related signal.

If "controller" is construed as Signify proposes, this claim covers any illumination apparatus with an LED and a "circuit or component" that receives a standard AC dimmer signal (purple text) and "controls" it to provide power to the LED. That would include the prior-art LED controller that the '399 patent describes at 9:25-49 and disparages as allowing "excess energy … to pass through to the traffic light, in most cases causing fatal damage to the light sources."

1. Purely functional claiming is prohibited.

The patent law does not permit this sort of broad functional claiming and contains safeguards against it. For example, if the claims are as broad as Signify asserts, they are not patent-eligible because they describe abstract ideas.[39] Claim 1 of the '138 patent describes the idea of operating an LED light based on an AC dimmer signal, and the other asserted claims describe the idea of dimming an LED light based on an AC dimmer signal. The Supreme Court's *Alice* decision, as well as the many cases applying 35 U.S.C. § 101, explain that these abstract ideas are not patent-eligible unless they are tied to a specific technical solution. In *Alice*, the Supreme Court wrote: "the relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. They do not." Signify's claims are analogous: they require using a "controller" to implement the idea of powering LEDs from an AC dimmer signal, but do not say *how* that idea should be implemented. This sort of claim has been repeatedly rejected. For example, in *Affinity Labs of Tex., LLC v. Directv, LLC*, the Federal Circuit held a claim invalid because there "is nothing in claim 1 that is directed to how to implement out-of-region broadcasting on a cellular telephone."[40] Similarly, in *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, the Federal Circuit explained that when a claim "contains no restriction on how the result is accomplished" and "[t]he mechanism ... is not described,"

[39] *See, e.g. Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208 (2014).
[40] 838 F.3d 1253, 1258 (Fed. Cir. 2016).

the claim is invalid.[41] In *ChargePoint, Inc. v. SemaConnect, Inc.*, the Federal Circuit invalidated claims "drafted in such a result-oriented way that they amounted to encompassing the 'principle in the abstract' no matter how implemented."[42] And in *Finjan, Inc. v. Blue Coat Sys., Inc.*, the Federal Circuit stated that "a result, even an innovative result, is not itself patentable."[43]

2. § 112(f) applies to the term "controller"

In the 1930s and '40s, including in *Halliburton Oil Well Cementing Co. v. Walker*, the Supreme Court rejected patent claims that described an invention "in terms of what it will do rather than in terms of its own physical characteristics or its arrangement in the new combination apparatus."[44] The *Halliburton* decision led Congress to enact what is now 35 U.S.C. § 112(f).[45] Section 112(f) allows a patent applicant to describe an element of his invention by the result accomplished or the function served, but requires such claim elements to be construed as limited to "the corresponding structure, material, or acts described in the specification and equivalents thereof."[46]

There is a presumption that claims that use the word "means" are governed by § 112(f), and those that do not are not.[47] However, this presumption can be rebutted, and does not elevate form over substance: "the essential inquiry is not merely the presence or absence of the word 'means' but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure."[48] Thus, in the absence of the word "means," § 112(f) nonetheless applies if "the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'"[49] "Generic terms like 'module,' 'mechanism,' 'element,' and 'device' are commonly used as verbal constructs that operate, like 'means,'

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[41] 942 F.3d 1143, 1150 (Fed. Cir. 2019).
[42] 920 F.3d 759, 769 (Fed. Cir. 2019).
[43] 879 F.3d 1299, 1305 (Fed. Cir. 2018).
[44] 329 U.S. 1, 9 (1946); *Gen. Electric Co. v. Wabash Co.*, 304 U.S. 364, 371 (1938) (rejecting claims that use "conveniently functional language at the exact point of novelty").
[45] *See Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 26-27 (1997). Note: 35 U.S.C. § 112(f) was until recently designated as § 112, paragraph 6, or as § 112(6).
[46] *Warner-Jenkinson Co.,* 520 U.S. at 26-27; *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347-48 (Fed. Cir. 2015); 35 U.S.C. § 112(f).
[47] *Williamson*, 792 F.3d at 1348.
[48] *Id.*
[49] *Id.* at 1349.

to claim a particular function rather than describe a 'sufficiently definite structure.'"[50] Claim terms are subject to § 112(f) when they include "*any* structure capable of performing the claimed function."[51]

Here, while the claims do not use the term "means," the intrinsic evidence shows that the term "controller" does not have a definite meaning as a name for structure. The specification expressly defines "controller" in broad functional terms as "various apparatus relating to the operation of one or more light sources":

> The terms "processor" or "controller" are used herein interchangeably to describe various apparatus relating to the operation of one or more light sources. A processor or controller can be implemented in numerous ways, such as with dedicated hardware, using one or more microprocessors that are programmed using software (e.g., microcode) to perform the various functions discussed herein, or as a combination of dedicated hardware to perform some functions and programmed microprocessors and associated circuitry to perform other functions.[52]

The first sentence of this passage provides a definition of the term "controller" through the phrase "as used herein." The Federal Circuit has recognized that this phrase invokes the "own lexicographer" law and provides a binding definition.[53] The remainder of the passage does refer to structure, but in doing so it gives examples showing that anything can be used: dedicated hardware, or a processor with software, or some combination of hardware, processors, software, and associated circuitry. That makes this term like the terms found to be subject to § 112(f) in *Egenera, Inc. v. Cisco Systems, Inc.*, because it "is no more than a 'black box recitation of structure' that is simply a generic substitute for 'means.'"[54] Thus, the term "controller" in the '399 and '138 patents is subject to § 112(f) and should be construed as limited to "the corresponding structure, material, or acts described in the specification and equivalents thereof."[55] Signify cites a number of district court decisions (at 13-14) finding that the term "controller"

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[50] *MTD Products Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019); *Egenera, Inc. v. Cisco Systems, Inc.*, 972 F.3d 1367, 1373 (Fed. Cir. 2020).

[51] *Diebold Nixdorf, Inc. v. International Trade Commission*, 899 F.3d 1291, 1300 (Fed. Cir. 2018) (emphasis in original).

[52] '399 patent, 6:19-28 (emphasis added).

[53] *Chemtall, Inc. v. United States*, 878 F.3d 1012 (Fed. Cir. 2017); *see also Medicines Co. v. Mylan, Inc.*, 853 F.3d 1296, 1300 (Fed. Cir. 2017) (finding that "As used here, 'batch' or 'pharmaceutical batch' refers to…." was a definition).

[54] 972 F.3d at 1375 (Fed. Cir. 2020); *see also Williamson*, 792 F.3d at 1350.

[55] *MTD Products*, 933 F.3d at 1343-45 (finding "mechanical control assembly configured to" was primarily functional and subject to § 112(f));

was not governed by § 112(f), but none of those cases involved a patent that expressly defined the term "controller" as "various apparatus relating to the operation of one or more light sources." Any meaning the term "controller" might have as a name for structure has been negated here by the specification's express definition.

Signify also cites dictionary definitions (at 14). But terms like "controller" and "control circuit" are good examples of terms that can mean different things in different contexts. The dictionary definitions that Signify picked provide multiple definitions.[56] The IEEE dictionary likewise provides multiple definitions of "controller."[57] The Federal Circuit held in *Intelligent Automation Design, LLC v. Zimmer Biomet CMF & Thoracic, LLC* that "'control circuit' does not provide enough description of the structure to render the limitation structural."[58] Similarly, it held in *Fiber, LLC v. Ciena Corp.*, that the term "control" was subject to 112(f), in part because the patent's figures depicted the control as a "generic box."[59] On the other hand, Signify cites multiple district court cases (at 13-14) that came to the opposite conclusion. These cases are not necessarily inconsistent because the context provided by each patent is different.

Here, the fact that specification has defined the term trumps any dictionary definitions that might apply in other contexts. The specification's definition—"various apparatus relating to the operation of one or more light sources"—is effectively a black box. Thus, § 112(f) applies.

3. The corresponding structure for the "controller" terms

The next step is to determine what structure in the specification, if any, corresponds to the functions recited in the claims for the "controller" terms.[60] Structure "corresponds" to a function when it is both "clearly linked" to the function by the specification, and is "sufficient" or "adequate" for performing that function.[61]

[56] Dkt. No. 54-9 at 4; Dkt. No. 54-10 at 4.
[57] Ex. 1 (THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS (7th ed. 2000) at 234.
[58] 799 F. App'x 847, 851 (Fed. Cir. 2020).
[59] 792 F. App'x 789, 792 (Fed. Cir. 2019).
[60] *See Williamson*, 792 F. 3d at 1351; *Egenera*, 972 F. 3d at 1373.
[61] *Williamson*, 792 F. 3d at 1351-1352.

Here, there are eleven asserted claims that recite different functions of the "controller": '399 claims 7-8, 17, 58-60 and '138 claims 1, 9-11, and 20.[62] Each of these claims except for '138 claim 1 requires in some way that the controller adjust, modify, or vary the light output. For example, '399 claim 7 requires that the "controller is configured to variably control the at least one parameter of the light based at least on the variable duty cycle of the power-related signal." Similarly, '138 claim 9 requires that the "controller is configured to variably control at least one parameter of light generated by the at least one LED in response to operation of the user interface [of the dimmer]." In contrast, '138 claim 1 requires only that the controller be "configured to provide power to the at least one LED based on the power-related signal."

As explained above, the '399 and '138 patents describe three different LED "controllers": non-dimming controller, a dimming controller, and a processor-based controller. As described above, each of these controllers is described by both a high-level block diagram (FIGS. 3, 5, 7), and a more specific circuit diagram (FIGS. 4, 6, 8-11). The corresponding structure for '138 claim 1 is the non-dimming controller, and the corresponding structure for the other claims is the dimming controller and the processor-based controller.

The primary dispute with respect to corresponding structure is whether the block diagrams for each of the controllers—Figure 5 for the dimming controller, and Figure 7 for the processor-based controller—are sufficient structure. Signify argues (at 15-17) that they are, and that as a result the claims should not be limited to equivalents of the actual implementations described in Figures 6 (dimming controller) and 8-11 (processor-based controller). This argument should be rejected because Figures 5 and 7 are block diagrams that do not identify sufficient structure for performing the claimed functions until they are combined with the more detailed figure(s) that follows it. The Federal Circuit held in *Blackboard, Inc. v. Desire2Learn, Inc.* that "a black box that performs a recited function" is not sufficient structure for performing that function.[63] That principle applies here. Additionally, the specification shows in multiple ways that the empty boxes in the figures are not sufficient structure. For

[62] Also asserted are '399 claims 18-19 and '138 claims 2, 21, 22. These claims add limitations that do not modify the function of the claimed "controller."

[63] 574 F.3d 1371, 1383 (Fed. Cir. 2009); *see also Fiber*, 792 F. App'x at 792 (finding that the term "control" was subject to 112(f) when the figures depicted the control as a "generic box").

example, the specification shows that the empty-box "low pass filter 408" shown in Figure 5 is not enough because the "filter parameters . . . are significantly important to ensure proper operation" of the controller and the cutoff frequencies "must be" within certain ranges.[64]

In *Texas Digital Systems v. Telegenix, Inc.*, the Federal Circuit evaluated U.S. Patent No. 4,734,619 and held that because "Fig. 3 and its accompanying text serve merely as overview for introducing and explaining Fig. 4, the corresponding structures must necessarily be found in Fig. 4."[65]

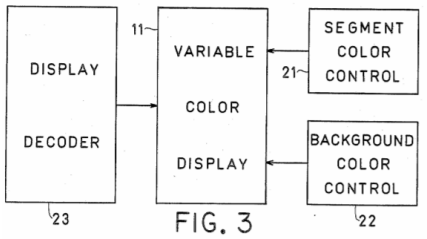


FIG. 3

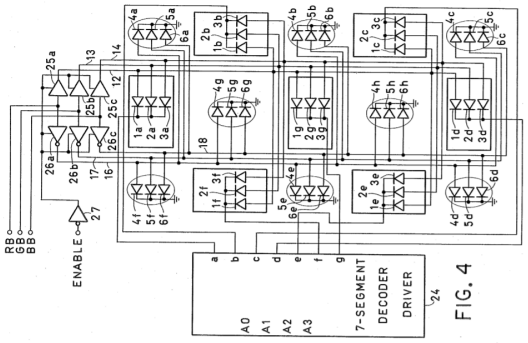


FIG. 4

Here, the situation is directly analogous. As shown below, Figures 5 serves as an overview for introducing and explaining Figure 6.

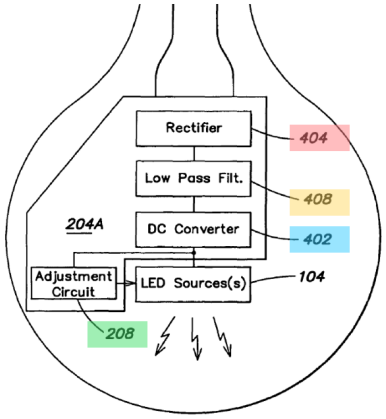


FIG. 5

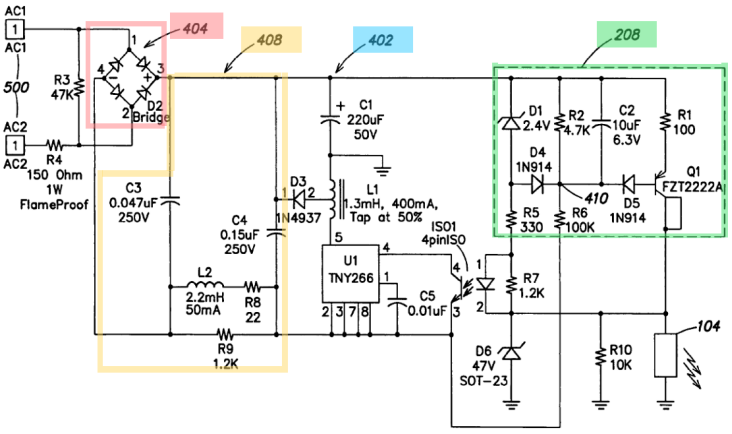


FIG. 6

The same is also true of Figures 7 and 8-11: Figure 7 serves as an overview for introducing and explaining Figures 8-11. Accordingly, as explained in *Texas Digital*, the corresponding structures must be found in Figures 6 and 8-11, not Figures 5 and 7. Another analogous case is *Bennett Marine, Inc. v. Lenco Marine, Inc.*, where Figure 1 depicted the "control circuit" merely as labeled box, Figure 2

[64] '399 Patent, 13:42-49, FIGS. 5, 6.
[65] 308 F.3d 1193, 1212 (Fed. Cir. 2002).

provided specific circuit structure, and the Federal Circuit found: "the scope of the corresponding structure for the control circuit … should be limited to the specific circuit shown in figure 2, and not construed broadly as the generic circuit shown in figure 1."[66]

For the processor-based controller, Signify's argument that Figure 7 is enough is also wrong for an additional reason: it ignores the algorithms that are required for the processor-based controller to function. The processor 102 in the processor-based controller needs to be "configured to control drive circuitry 109 to drive the light sources."[67] Similarly, the specification explains that the processor-based controller uses "microprocessors" that needs to be "programmed using software (e.g., microcode) to perform the various functions discussed herein."[68] It is well-established that the "structure of a microprocessor programmed to carry out an algorithm is limited by the disclosed algorithm."[69]

Finally, Signify argues (at 17) that because specification discloses certain specific variations on what is shown in Figures 6 and 8-11, the corresponding structure should be broadened to include the full scope of the block diagrams in Figures 5 and 7. That does not make sense. A specific circuit variation disclosed in the specification is certainly part of the corresponding structure, but the fact that a few specific variations are disclosed does not mean that all possible circuits are suddenly swept into the claim scope. For example, Signify points to the specification's statement that "it may be advantageous to place all or part of the filter components ahead of the bridge rectifier 404."[70] That specific variation should be included as part of the corresponding structure, along with the rest of the specification's discussion of Figures 6 and 8-11. But that passage does not imply that Figure 5 is sufficient structure: indeed, Figure 5 does not disclose any of the referenced "filter components." Those components are shown instead in Figure 6 (outlined in yellow above).

[66] 549 F. App'x 947, 950, 954 (Fed. Cir. 2013).
[67] '399 patent, 15:11-44.
[68] *Id.* at 14:59, 6:23-28.
[69] *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1348 (Fed. Cir. 1999).
[70] '399 patent, 13:56-58.

B. "adjustment circuit"

Signify's Construction	Defendant's Construction (summary)
Plain and ordinary meaning. (If a construction is required: "A circuit that adjusts.")	Means-plus-function term. Structure: the components of adjustment circuit 208 that are shown in FIG. 6 and structural equivalents thereof.

1. § 112(f) applies to the term "adjustment circuit"

In the '399 and '138 patents, the phrase "adjustment circuit" refers to a specific part of the dimming controller, element 208 (colored green) in Figure 5 and 6:

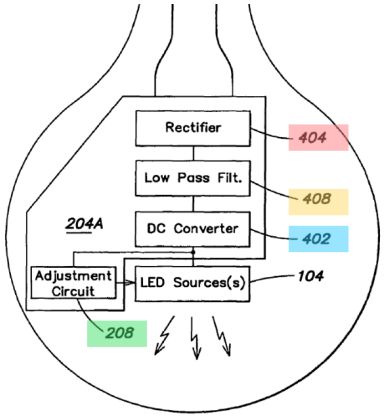


FIG. 5

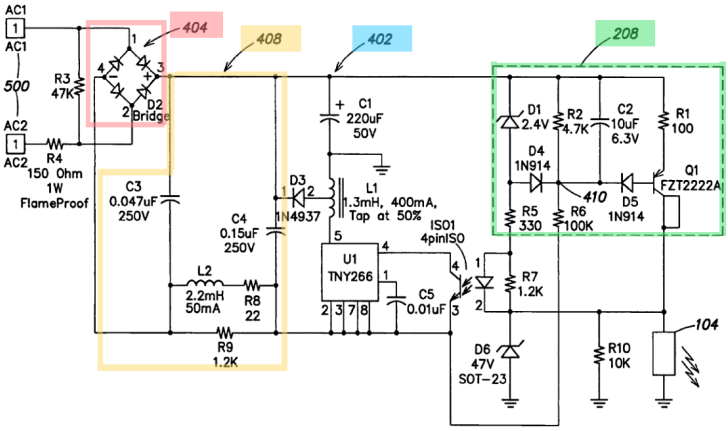


FIG. 6

The term "adjustment circuit" is subject to § 112(f) because it is no different than saying "adjustment means." The specification demonstrates this by using "adjustment circuit" in two ways: to describe the empty box of Figure 5, and to describe the specific circuit shown in Figure 6. In particular, the phrase "adjustment circuit" appears in the specification five times: at 3:45, 14:13, 14:14, 14:23, and 19:7. In all but the first "adjustment circuit" appears as "adjustment circuit 208." The label 208 appears in Figures 5 and 6 as shown above. In Figure 6, it identifies the specific structure that is surrounded by the dotted line highlighted in green (which is the structure that Lepro contends is corresponding structure for this term). In Figure 5, it identifies the empty box labeled "adjustment circuit."

In the one place where "adjustment circuit" is used without referring to element 208, at 3:45, the '399 patent states: "The system also includes an adjustment circuit associated with the power converter adapted to adjust power delivered to the at least one LED."[71] This statement describes function: the only

[71] '399 patent at 3:45-47.

structure is the words "adjustment circuit." But as Figure 5 shows, those words are no more than "a black box recitation of structure that is simply a generic substitute for means."[72] Thus, the term is subject to § 112(f).

Signify argues (at 18) that because the term "adjustment circuit" in another patent was construed to be an "adjustable circuit that is operable to generate reference voltages," this Court should conclude that § 112(f) does not apply here. But the adjustment circuit here does not generate reference voltages, it adjusts power delivered to the LED(s). It is necessarily a different structure from the one at issue in the decision Signify cites. Thus, if anything, that decision shows that the term "adjustment circuit" does not connote a specific structure here. Signify also cites (at 18) *Linear Tech. Corp. v. Impala Linear Corp.*.[73] *Linear* is inapplicable here for two reasons. First, it was decided eleven years before *Williamson*[74] clarified the proper analysis under § 112(f). Second, *Linear* was based on expert testimony explaining that the specific circuits at issue there were sufficiently well known that a person of ordinary skill would be able to draw them based on their names.[75] The evidence here is to the contrary: the only drawings of an "adjustment circuit" are in Figure 6 of the '399 patent, and the '399 patent describes that circuit as novel, not as well-known.

Signify argues (at 19) that the claim language in '399 claims 19 and 20 specifies sufficient structure for the adjustment circuit. The only structural limitation in claim 19 requires the adjustment circuit to be "coupled to the DC converter." That shows what the adjustment circuit is electrically connected to, not what it is. Claim 20 is requires the adjustment circuit to include a "processor configured to monitor" one of three things. While a processor is structure, a processor that monitors something cannot be sufficient structure for performing the claimed function of controlling/adjusting the power to the LEDs.

2. The corresponding structure for the "adjustment circuit" terms

As with "controller," the first dispute with respect to corresponding structure is whether a generic box is enough. Here, element 208 in Figure 5 is an empty box labeled "adjustment circuit." Signify

[72] *Egenera*, 972 F. 3d at 1373, *Williamson*, 792 F. 3d at 1351.
[73] 379 F.3d 1311 (Fed. Cir. 2004).
[74] 792 F.3d 1339 (Fed. Cir. 2015).
[75] 379 F.3d at 1320.

argues (at 20) that is corresponding structure. But as stated above, "a black box that performs a recited function" is not sufficient structure.[76] Signify also argues (at 20) that certain statements in the specification (at 14:11-18) add something structural to the box in Figure 5. Not so. The statements cited by Signify are functional. The description of how to accomplish the function of the adjustment circuit appears at 14:23-40, where the specification describes the circuit shown as element 208 in Figure 6.

Finally, Signify points out that what the specification states at 19:5-9:

> For example, the circuit of FIG. 8 may be modified to include additional components similar to those shown in connection with the adjustment circuit 208 of FIG. 6 which provide the control voltage 410 (e.g., a resistor divider network in the opto-isolator feedback loop).

This passage explains that Figure 8—which as drawn provides a constant 16V to the drive circuitry—could be modified to include the adjustment circuit of Figure 6. That fact only confirms that the corresponding structure for the "adjustment circuit" is what is shown in Figure 6 and its structural equivalents: it is not disclosing any different adjustment circuit, it is saying that the adjustment circuit of Figure 6 could be added to Figure 8.

Next, Signify correctly points out (at 20-21) that in the processor-based embodiment, the specification describes using a "processor" in conjunction with the "drive circuitry" of Figures 9, 10, or 11 to control the intensity of the LED light. But control using processor-plus-drive-circuitry is very different from control using an "adjustment circuit." As mentioned above, it can be used to control LEDs in a wide variety of ways, not just by changing their intensity, but also by changing color or "temporal qualities" such as "rate of strobing of a given color, rate of change of a rainbow wash of colors, etc."[77] More importantly, as explained in the previous paragraph, the specification specifically describes the adjustment circuit as an alternative that can be used to <u>modify</u> the power circuitry of Figure 8, which is what is used with the processor-based embodiment. Thus, the specification does not "clearly link" control using processor-plus-drive-circuitry to the term "adjustment circuit." To the contrary, it distinguishes the two. As a result, structure from the processor-based embodiment cannot correspond to the claimed "adjustment circuit."

[76] *Blackboard*, 574 F.3d at 1383; *Fiber*, 792 F. App'x at 792.
[77] '399 patent, 19:34-42, 20:25-39.

C. "power circuitry"

Signify's Construction	Defendant's Construction (summary)
Plain and ordinary meaning. (If a construction is required: "Components of a circuit that provides power.")	Means-plus-function term. Structure: components of Fig. 6 for elements 404 (rectifier), 408 (low pass filter), and 402(DC converter), and structural equivalents.

1. § 112(f) applies to the term "power circuitry"

The term "power circuitry" appears in '399 claims 17-18 and '138 claims 20-21. It is subject to § 112(f) because it is no different than saying "power means."

The term "power circuitry" is used in Figure 7 (purple below). It is also used the specification's statement that "FIG. 8 is a circuit diagram illustrating various components of the power circuitry for the lighting unit of FIG. 7."[78]

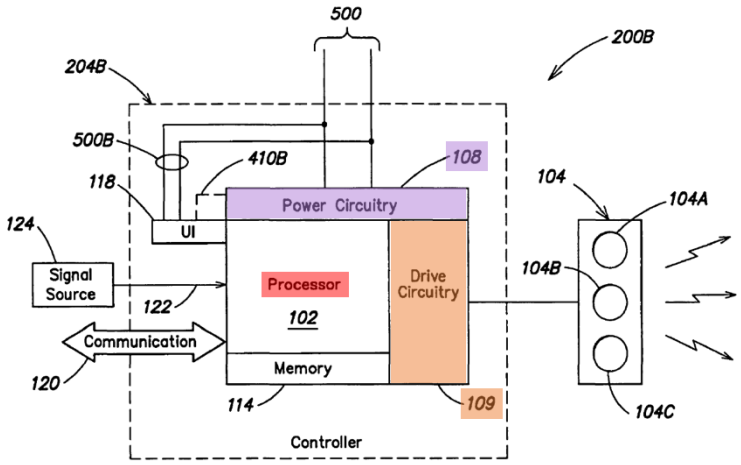


FIG. 7

Beyond that, the term "power circuitry" only appears in the description of Figures 7 and 8, at 18:44-19:2, in each case as "power circuitry 108." Thus, as with the term "adjustment circuit," the specification shows that the term "power circuitry" refers to either an empty box labeled "power circuitry" in Figure 7, or to the specific circuit shown in Figure 8 (which is as based on the elements of Figures 4 and 6).[79] The same conclusion also applies: the term is subject to § 112(f), because by itself it is only "a black box recitation of structure that is simply a generic substitute for means."[80]

[78] '399 patent at 8:49-50.
[79] *Id.* at 18:50-53.
[80] *Egenera*, 972 F. 3d at 1373; *Williamson*, 792 F. 3d at 1351.

Signify argues (at 22) that dictionaries show that the term "power circuitry" denotes structure. But the dictionary definition Signify cites says that "power circuitry" means "wires," and that is not what the phrase is used to mean in the '399 and '138 patents. The specification explains that the "power circuitry" receives an AC dimmer signal and provides "a 5 Volt DC output" for the processor, and a "16 Volt DC output" for the drive circuitry. No mere "wires" do that. Thus, Signify's dictionary proves the opposite of what Signify asserts: that the term "power circuitry" does not denote a definite structure. In the case contemplated by the dictionary, it is "wires," but in the case of these patents, it is something much more complicated.

2. The corresponding structure for the "power circuitry" terms

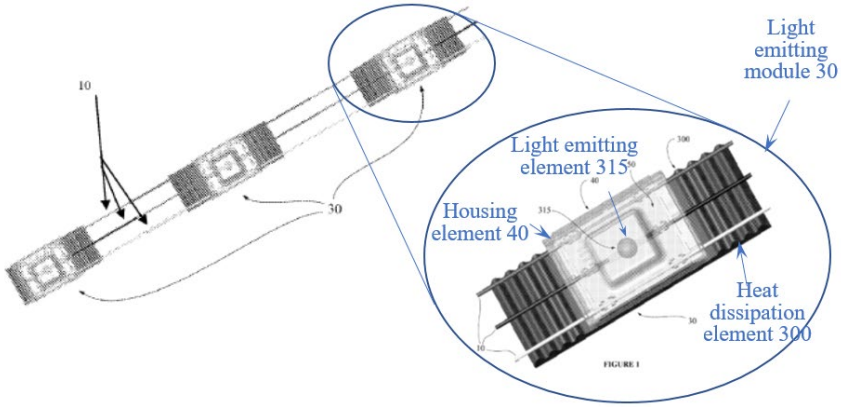
As with "controller" and "adjustment circuit," the primary dispute with respect to corresponding structure is whether a generic box is enough. It is not, for the reasons discussed above.

V. THE '604 PATENT

The '604 Patent, titled "Light-Emitting *Module*," claims certain light-emitting modules that form a "lighting system" and defines the "Field of Invention" at the top of the specification as follows:

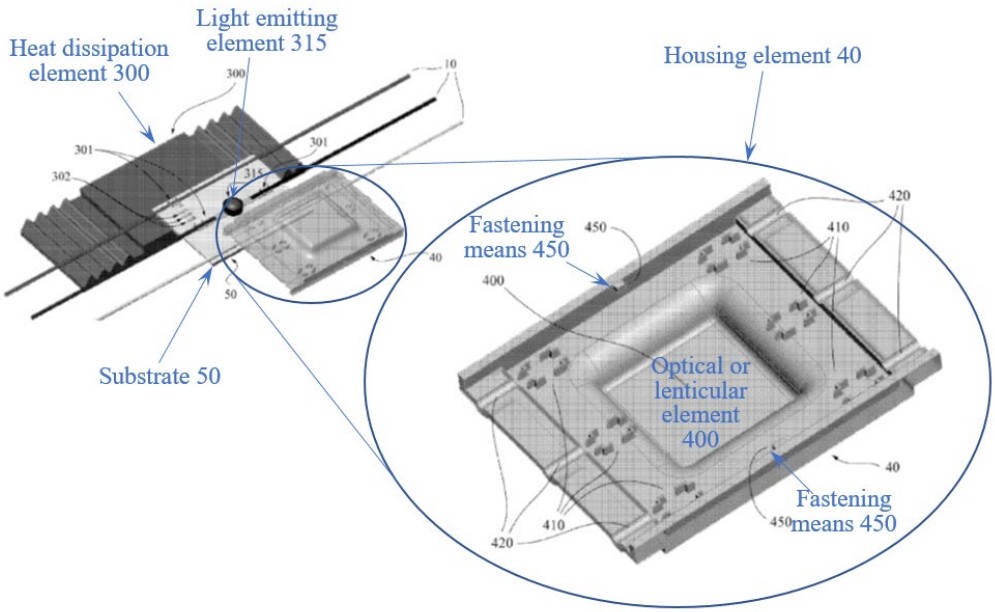
> The *present invention* pertains to the field of lighting *systems* and *in particular* to a light-emitting module with *versatile electromechanical mounting, connecting, and assembly capabilities.*[81]

Accordingly, what is taught in the '604 Patent is a modular structure "with versatile electromechanical mounting, connecting, and assembly capabilities" to be attached to "a cable system 10 such that an electrical connection is made between the cable system and the light-emitting module":[82]



[81] '604 Patent, Face, 1:5-8 (emphasis added).
[82] *Id.* at 5:36-44, FIGS. 2(a), 1 (annotations added).

As can be seen above and below, each of the light-emitting modules 30 has a housing element 40, a heat sink 300, a substrate 50 (visible through the housing element 40), and a light-emitting element 315 (visible through the housing element 40)."[83] The housing element 40 has a single, unitary structure with an optical or lenticular element 400, as shown below:[84] Further, the housing element 40 includes a "fastening means" with a structure of the tabs 450.[85] "[T]he fastening elements [can] clutch the heat dissipation element and secure a releasable connection between the housing element and the heat dissipation element."[86]



A. "light-emitting module"

Signify's Proposed Construction	Defendants' Proposed Construction
Term appears in preamble, no construction required; however, to the extent that the Court deems a construction is required: "A self-contained assembly of electronic components and circuitry for emitting light"	Preamble is limiting. "A packaged light emitting device designed for use with other light emitting devices"

"In general, a preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim."[87] The '604 Patent is not about a stand-alone

[83] *See id.*
[84] *Id.*, 7:33-4, FIGS. 3, 4 (annotations added).
[85] *Id.* at 7:42-54.
[86] *Id.*
[87] *Catalina Mktg. Int'l, Inc. v. Coolsavings.com*, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002); *Cochlear Bone Anchored Sols. AB v. Oticon Med. AB*, 958 F.3d 1348, 1354 (Fed. Cir. 2020).

light-emitting "assembly," which is reflected by the backup construction Signify proposes above. Instead, the patent pertains "in particular" to a light-emitting *module* in the field of lighting systems.[88] It is no accident the preamble of the sole independent claim recites a "module" as opposed to merely, *e.g.*, a generic "apparatus," because the modular form is necessary to give life, meaning, and vitality to the claim. The modular characteristic is touted repeatedly as a feature of the "present invention."[89] The preamble is therefore limiting.[90]

The modular characteristic is further reflected in the patent title, which reads "Light-Emitting Module." It is accounted in the summary of the invention. '604 Patent, 2:64-65 ("An object of the present invention is to provide a light-emitting module"). It is manifested in all embodiments disclosed in the specification.[91] The ample intrinsic evidence further supports Defendants' position that the preamble is therefore limiting.[92]

Finally, the preamble is limiting here because it "recites essential structure" to the claimed invention. *Catalina*, 289 F.3d at 808 ("when reciting additional structure … underscored as important by the specification, the preamble may operate as a claim limitation."); *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989) (finding the preamble "optical waveguide" limiting and not merely stating an intended use of the invention because the "specification makes clear that the inventors were working on the particular problem of an effective optical communication system not on general improvements in conventional optical fibers"). Similarly, a

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[88] '604 Patent at 1:5-8.

[89] *See id.* at 4:65-5:2 ("The light-emitting module according to the present invention is further configured to provide the ability to create a lighting system comprising multiple light-emitting modules through the interconnection of two or more light-emitting modules."); 4:7-8 ("The *present invention provides a light-emitting module* that enables heat dissipation …").

[90] *See Fenner Invs., Ltd. v. Cellco P'ship*, 778 F.3d 1320, 1324 (Fed. Cir. 2015) (describing the features of the "present invention" as a whole limits the scope of the invention); *Trading Techs. Int'l v. eSpeed, Inc.*, 595 F.3d 1340, 1353-54 (Fed. Cir. 2010) (a "reference to 'the present invention' strongly suggests" that the patentee is not describing a mere embodiment); *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) (finding the terms "this invention" and "the present invention" to limit the claims).

[91] *See* '604 Patent FIGS. 2(a)-2(c), FIGS. 3, 5, 9:54-10:34 (additional embodiments not depicted in figures).

[92] *Accord Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) (finding "rotary cutter deck" in preamble limiting where "[t]he specification repeatedly refers to the 'present invention' as 'an improved deck for a rotary cutter,' or a 'rotary cutter deck.' … The title of the patent, the summary of the invention, and every drawing describe the invention as a deck for a rotary cutter.").

POSITA would have understood the claimed "light-emitting module" to be an essential structural limitation because the '604 inventors were not working on general improvements for any type of LED luminaires. They were working on the solution for meeting "a need for a new lighting module that provides optical, mechanical, electrical, and thermal functionality and electromechanical connectivity *in a modular form*."[93] Unlike the *Arctic Cat Inc. v. GEP Power Prod., Inc.* case Signify cited, the term "module" in the '604 Patent does not only "state a purpose or intended use for the invention."[94]

For the foregoing reasons, Signify's proposal, "[a] self-contained assembly of electronic components and circuitry for emitting light," should therefore be rejected because it does not convey the modular characteristic of the claimed structure, which is essential to the alleged invention. Defendants' proposed construction, "[a] packaged light emitting device designed for use with other light emitting devices," should be adopted.

B. "fastening means"

Signify's Proposed Construction	**Defendants' Proposed Construction**
Governed by § 112 ¶ 6. Function: detachably coupling the housing element to the heat dissipation element. Structure: fastening means as described at 5:18-24, 6:18-24, 7:25-26, 7:42-51, 7:55-67 and/or identified by reference numeral 450 in FIG. 4, and equivalents thereof.	Means plus function term. Function: releasably connecting the housing element to the heat dissipation element. Structure: The tabs 450 shown in Fig. 4 and described in col. 7:42- 51, and their structural equivalents.

The parties agree that this term is a means-plus-function term. The parties also agree that the specification discloses a corresponding structure for the claimed "fastening means" as the tabs 450 (integrated with the housing element 40) shown in Fig. 4 and described in the specification ('604 Patent, 7:42-51):

[93] '604 Patent at 2:51-54 (emphasis added); *see also id.* 1:5-8 ("The present invention pertains … in particular to a light-emitting module with versatile electromechanical mounting, connecting, and assembly capabilities."); *id.* at 4:65-5:2 ("The light-emitting module according to the present invention is further configured to provide the ability to create a lighting system comprising multiple light-emitting modules ….").

[94] 919 F.3d 1320, 1328 (Fed. Cir. 2019).

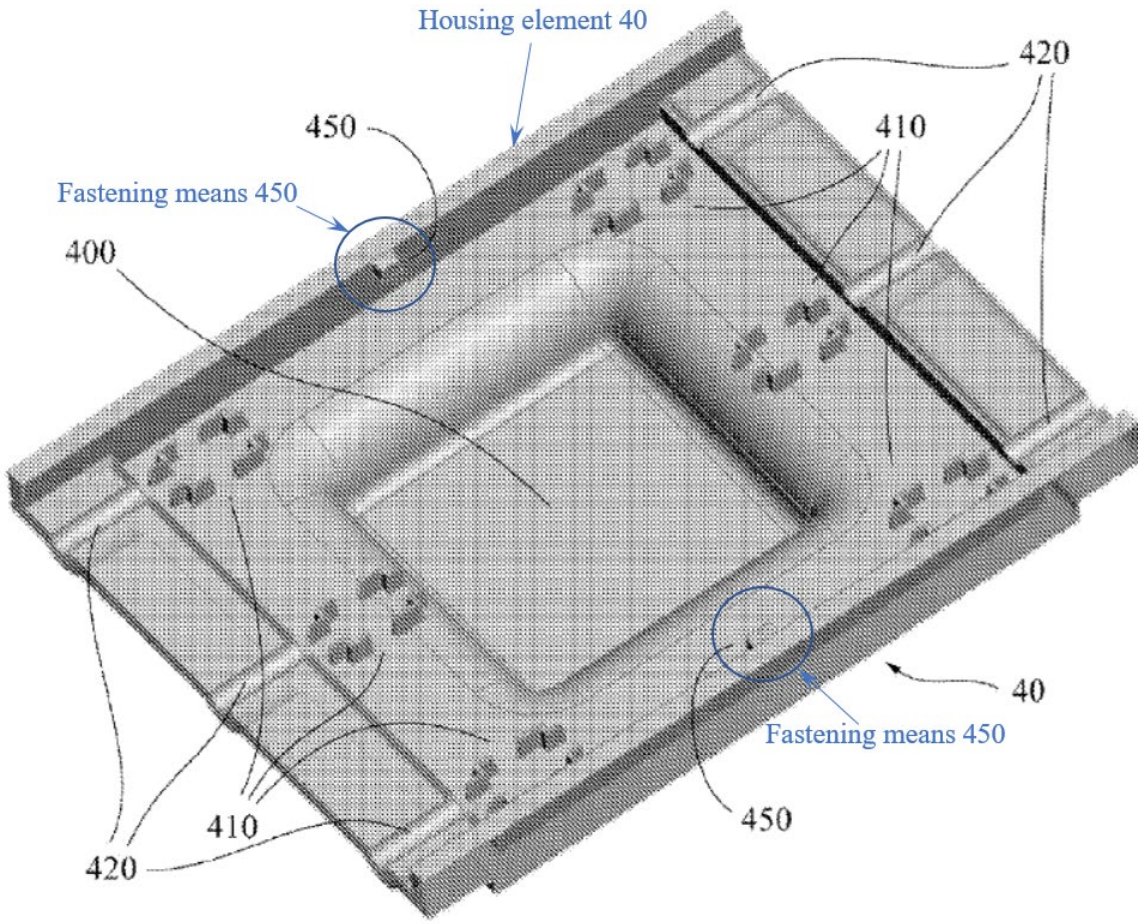

FIGURE 4

The parties dispute whether alternative structures Signify identifies from the specification such as "screws, bolts [] rivets or the like; magnetic mounting systems, adhesives for example, pressure sensitive tape, glue or epoxy or the like" correspond to the claimed function at issue.[95] The parties also dispute whether the limitation requires construction to properly define the claimed function of the means-plus-function term.

1. "Corresponding Structure"

Signify's interpretation is erroneous because the alternative "structures" it proposes do not link to the claimed function. The Court "must construe the 'means' to include only the 'corresponding structure, material or acts described in the patent specification' and their 'equivalents.'"[96] "If the patent's specification does not link a given structure to the relevant function, that structure cannot be part of the

[95] '604 Patent, 5:18-24.

[96] *Konami Gaming, Inc. v. Marks Studios, Ltd. Liab. Co.*, 2017 U.S. Dist. LEXIS 116669, at *16 (D. Nev. July 25, 2017).

patentee's claims."[97] This requires an indication in the specification or prosecution history that the structure corresponds to the claimed function.[98]

Neither the '604 specification nor its prosecution history contains any indication linking "screws, bolts [] rivets or the like; magnetic mounting systems, adhesives for example, pressure sensitive tape, glue or epoxy or the like" to the recited "detachably coupling [or releasably connecting][99] the housing element to the heat dissipation element" function.

There is no disclosure anywhere in the specification linking Signify's alternative structures to the "detachably coupling [or releasably connecting] the housing element to the heat dissipation element" function. Signify's cite of the specification describing the alternative "fastening means" structures is selective; a complete reading of the paragraph would reveal that the alternative structures are taught to perform a completely different function. Specifically, the entire paragraph states:

> In one embodiment, the ***light-emitting modules*** are ***mechanically mounted to various receiving means or mounting systems*** such as a track, or similar structure as would be readily understood. Where the light-emitting modules are mounted on a track, for example, the track may be attached to various structures such as the inside back wall of a canopy, or any other surface as would be readily understood. Alternatively, ***the light emitting modules can be mounted at desired locations by fastening means***. The fastening means can be mechanical fasteners for example, screws, bolts rivets or the like, magnetic mounting systems, adhesives for example, pressure sensitive tape, glue or epoxy or the like, or other forms of fastening means as would be readily understood by a worker skilled in the art.[100]

The "fastening means" mentioned above functions to mount the <u>*whole*</u> "light-emitting modules." It is different from the function recited in the claim, which requires detachably coupling of components

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[97] *Id.*; *see also Diebold Nixdorf, Inc. v. Int'l Trade Comm'n*, 899 F.3d 1291, 1303 (Fed. Cir. 2018) (citing *Williamson*, 792 F.3d at 1352) ("Structure disclosed in the specification qualifies as 'corresponding structure' [only] if the intrinsic evidence clearly links or associates that structure to the function recited in the claim.").

[98] *See B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1425 (Fed. Cir. 1997) (rejecting patentee's attempt to include an alternative structure for a means-plus-function limitation because "neither the specification nor the prosecution history contains any indication that the valve seat structure corresponds to the recited function, i.e., that it holds the flexible disc against the triangular member so as to restrain sideways movement.").

[99] The bracket indicates the parties' dispute over the construction vis-à-vis the function aspect of the means-plus-function term.

[100] '604 Patent, 5:11-24 (emphasis added).

within the module.[101] Indeed, the section of the specification (including the portion Signify selectively cites) makes no mention of the housing element or the heat dissipation element at all.[102] Thus, the additional structures proposed by Signify do not "clearly link[] to or associate[] with" the recited function from claim 1 and thus must be rejected.[103] For example, a "rivet"—which is one of the alternative structures Signify proposes—cannot serve the function of "detachably coupling" because a rivet is a permanent fastener. The alternative structures Signify proposes therefore do not correspond to Signify's own construction of the function of the means-plus-function term.

Signify's proposal to include alternative mechanical fasteners such as screws, bolts, magnetic mounting systems, or the like, also contradicts statements made by the '604 Applicant before a foreign patent office. As explained in *Apple Inc. v. Motorola, Inc.*, it is proper for federal courts to consider statements made by an applicant before a foreign patent office for interpreting claims if the statements "are relevant and not related to unique aspects of foreign patent law."[104] Thus, in *Apple* the Federal Circuit endorsed the district court's reliance on statements the patentee Motorola made to the Japanese patent office for rendering a construction of the term "transmit overflow sequence number," where (i) the statements were made to distinguish prior art, (ii) both "specifications are the same," and (iii) "at the time Motorola made its statements to the Japanese patent office, the Japanese application contained a claim identical to" the claim at issue.[105] The Federal Circuit accordingly affirmed the district court's construction. Here, the statements were made by the '604 Applicant before the European Patent Office regarding a related European Application No. 06741539.8. That European Application shares the same specification with the '604 Patent[106] and includes the identical claim at issue (claim 1 of the application is identical to claim 1 of the '604 patent).[107] To distinguish two references D1 and D2 cited by the

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[101] '604 Patent, claim 1 ("fastening means for detachably coupling the housing element to the heat dissipation element").
[102] *Compare* '604 Patent, 5:11-24 *with id.*, claims 1, 11.
[103] *Diebold Nixdorf, Inc.*, 899 F.3d at 1303.
[104] 757 F.3d 1286, 1312 (Fed. Cir. 2014).
[105] *Id*. at 1312-13.
[106] The European Application originated from an international application published on November 23, 2006, having an application number PCT/CA2006/000827 (Ex. 2), which shows on its cover page that it claims priority to the same U.S. application that led to the '604 patent. Ex. 3 shows that international application entered European phase on September 28, 2007, and was assigned the European application number 06741539.8.
[107] Ex. 2 at 16.

European Patent Office, the '604 Applicant stated that the claimed "fastening means" is "integrated" with the housing element.[108] Specifically, the examiner noted that a "cover" disclosed in D2 is "coupled to the heat sink by the flange at the edge and a holder."[109] The Applicant argued in response that the "holder" in D2, which couples the "cover" (corresponding to the housing element) with the "heat sink" (corresponding to the heat dissipation element), "is not a part of the cover, leading to an inconvenient arrangement."[110] "In contrast, the integrated fastening means of the housing element in the present invention provides a convenient coupling arrangement."[111] The alternative structures Signify proposes in front of this Court such as screws, bolts, or magnetic mounting systems are not integrated with the housing element. Adopting the alternative structures Signify proposes as corresponding structures would therefore contradict the express disclaimers made by the Applicant in front of the European Patent Office.

With respect to the U.S. file history, Defendants' construction is consistent with the examiner's statement distinguishing the *prior art*'s "fastening means (adhesive 185)" from the *claimed* "fastening means" when allowing the patent.[112] Critically, Signify admits that the Examiner allowed the '604 Patent over the prior art because the prior art "fails to disclose that the fastening means (adhesive 185) is part of the housing 140."[113] That is, the USPTO Examiner's reason for allowing the patent confirms the patentee's disclaimer of any structure not integrated with the "housing element" for the "fastening means" in the European proceedings. In other words, the claimed "fastening means" *cannot* be the separate screws, bolts, magnetic mounting systems and the like that are *not* part of (and integrated with) the "housing element" under the examiner's reason for allowance and the patentee's disclaimer. Thus, Signify's proposal must be rejected.

Finally, Signify's argument that Defendants' proposal renders dependent claim 11 superfluous should be rejected because it misapplies the claim differentiation law. Claim 11 recites "[t]he light-emitting module according to claim 1, wherein the housing element is formed from flexible material for

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[108] Ex. 4 at 4.
[109] Ex. 4 at 4.
[110] *Id.*
[111] *Id.*
[112] Op. Br. at 32.
[113] *Id.* (boldface and italics removed; underlining added).

releasably connecting to the heat dissipation element." The limitation reciting "formed from flexible material" is not present in claim 1. Claim 1 is therefore already broader than claim 11 by *not* requiring the housing element to be "formed from flexible material."[114] There is no need for "detachably coupling" to be *also* broader than "releasably connecting" for claim 11 to be narrower. Thus, Signify's argument misapplies the law and should be rejected.

2. "Function"

Further and with respect to the function of the means-plus-function term, "detachably coupling" should be construed as "releasably connecting" as Defendants propose. This is because, as explained above, the tabs 450 are the *only* structures that support the "fastening means" by "secure[ing] a releasable connection between the housing element and the heat dissipation element," as described in the specification.[115]

Signify's proposal simply repeats the claim language. It appears, on the other hand, that Signify intends its construction to cover non-releasable couplings implemented by permanent fasteners such as rivets or semi-permanent fasteners such as glues.[116] The Court should therefore resolve a potential ambiguity in the proposal and adopt Defendants' construction because it is supported by the specification and the file history, and it makes clear non-releasable coupling mechanisms are not included. For example, in connection with the specification's emphasis on the modular characteristic of the claimed invention, it also touts repeatedly the ease of repair and replacement, including replacing individual components. For example, it states at 6:46-54:

> As illustrated in FIG. 3, the light-emitting module can be assembled in a relatively easy manner, and further can provide a means for relatively easy replacement or repair of the module components. This configuration of the light-emitting module can further provide a mean[] for versatility of the light-emitting module based on the elemental configuration thereof for ease of changing of the components, for example changing of a housing element.

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[114] It should be noted the flexibility of the "housing element" is not the *only* way for the "fastening means" to detachably couple the housing element to the heat dissipation element in claim 1, as Signify incorrectly suggests. For example, the heat dissipating element in claim 1 may include corresponding slots configured to allow the fastening means (*i.e.*, the tabs 450 and their equivalents) to detachably couple the housing element to the heat dissipation element, *regardless of the housing element's flexibility*.

[115] '604 Patent, 7:42-51.

[116] Op. Br. at 30-31.

Releasably coupling the housing to the heat sink achieves the touted advantages. A non-releasable coupling does not. The requirement for a convenient and releasable coupling is further emphasized by the '604 Applicant to distinguish prior art in front of the European Patent office: "However, it will be appreciated that the holder is not a part of the cover, leading to an inconvenient arrangement. Furthermore, the holder of [the prior art] does not provide a secure, *releasable* coupling of the cover to the heat sink."[117]

C. "thermally connected/thermally coupled"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: "Transfer via thermal conduction, convection, or radiation."	"connected via thermal conduction, convection, or radiation; not thermally insulated"

The parties agree that thermally "connected" and thermally "coupled" have the same meaning. That is, there is no dispute that "connected" and "coupled" are synonymous.

The parties also agree that "thermally" connected or coupled means the act of being "connected" or "coupled" is achieved "via thermal conduction, convection, or radiation." But Signify apparently interprets the act of "coupled" or "connected" to mean "transfer," which is wrong because "transfer" just plainly does not mean "coupled" nor "connected."[118] Indeed, the words "coupled" and "connected" in their ordinary meanings refer to a *state* or *condition*, while "transfer" a *movement*. Thus, Signify's proposal should be rejected for this reason alone.

Contrary to Signify's suggestion, the clarification language Defendants proposes - "not thermally insulated" - should be included in the construction based on intrinsic support. As explained by the specification, the heat dissipation via thermal conduction, convection, or radiation is "passive," meaning that thermal conduction, convection, or radiation takes place *by itself* as a natural phenomenon in physics.[119] But if there is thermal insulation between two things, even though thermal conduction, convection, or radiation between them still takes place passively, a POSITA would *not* have recognized a thermal connection or coupling because of the insulation. That is, two things in proximity, unless

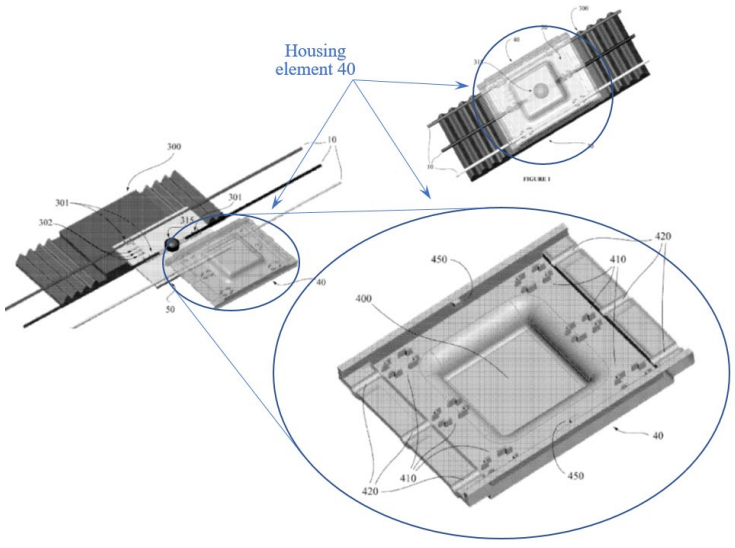
[117] Ex.4 - Applicant's Response to European Office Action dated June 10, 2014 (emphasis added).
[118] *See Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372-73 (Fed. Cir. 2004) ("ordinary, simple English words … mean exactly what they say").
[119] '604 Patent, 6:61-65.

"thermally insulated" from each other, are thermally connected or coupled because of the passive thermal conduction, convection, or radiation. Thus, Defendants' proposal including the clarification of "not thermally insulated" should be adopted.

D. "housing element including a transparent region"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: "A housing part including a transparent region"	"a single structure having a transparent region"

Defendants' proposal should be adopted because the term is a "housing *element* including a transparent region," *not* a "housing *part* including a transparent region." That is, the word "element," in its plain and ordinary meaning, strongly suggests that the recited structure is "element[ary]" and thus is in one physical piece having a transparent "region" on the same one piece. The phrase should *not* mean just a "part" that may be an assembly of *multiple* sub-parts including one that is transparent, contrary to what Signify proposes.[120] In other words, a POSITA would have understood the phrase "housing *element* including a transparent region" to mean "a *single structure* having a transparent region" *on that same single structure*, as proposed by Defendants. Indeed, the specification supports this interpretation because it repeatedly shows a unitary housing element 40 being just one single structure, as opposed to a part that may be an assembly of multiple sub-parts (*see, e.g.*, '604 Patent, FIGS. 1, 3, and 4):



[120] *See Chef America*, 358 F.3d at 1372-73 (ordinary, simple English words whose meaning is clear and unquestionable and there is no indication that their use in the patent changes their meaning, mean exactly what they say).

Signify improperly suggests that the term encompasses an assembled part including a transparent sub-part constituting the "transparent region." That contradicts the plain and ordinary meaning of the word "element." Thus, Defendants' proposed construction should be adopted.

VI. THE '577 PATENT

A. "connected/coupled in series"

Signify's Construction	Defendant's Revised Construction
Plain and ordinary meaning.	The "clear, simple definition" or "basic idea of a series circuit" as described by Dr. Zane at 34:4-38:15, and in the IEEE dictionary *i.e.*: the same current passes through each [connected/coupled] device in completing its path to the source of supply

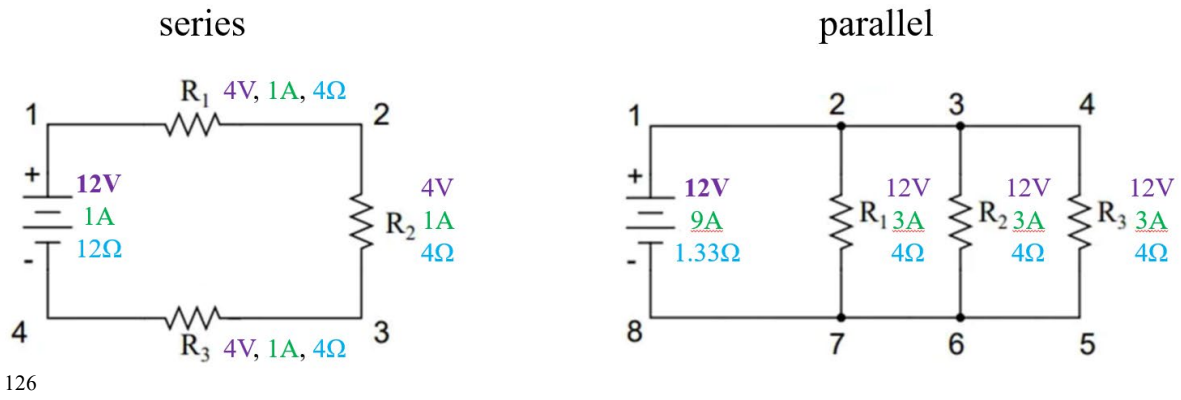
The '577 patent uses the phrases "in series" and "in parallel" with their normal, contrasting meanings: "If more than one LED is connected to the driver circuit 1, they may be connected in parallel or in series."[121] Signify's arguments incorrectly suggest that the meaning of "in series" can encompass its opposite, "in parallel." However, Lepro largely agrees with the deposition testimony of Signify's expert, Dr. Zane, about the meaning of the term. Thus, Lepro has revised its construction to conform to the identified parts of Dr. Zane's testimony.

There remain disputes about how a person of ordinary skill would apply the term "series" to the accused products' circuits (as opposed to ideal circuits). But questions about how the term "in series" applies to real-world circuits are not properly addressed at this point: claims may not be construed by reference to the accused device.[122] Instead, "[a] court determines patent infringement by first construing the claims and then applying the construed claims to the accused process or product."[123]

As Dr. Zane's testimony shows, devices in series share the same current, while devices in parallel share the same voltage. In the example circuit below left, three resistors are connected in series to a 12-volt (V) battery. Each resistor has a current of 1A and a voltage of 4V, and together, they have the same

[121] '577 Patent at 3:43-45 (emphasis added).
[122] *Neomagic Corp. v. Trident Microsystems*, 287 F.3d 1062, 1074 (Fed. Cir. 2002).
[123] *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364 (Fed. Cir. 2003), *citing Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996).

current: 1A.[124] In the example above right, the same three 4-ohm (Ω) resistors are connected in parallel to the same 12V battery. Now each resistor has 12V and 3A, and the total current is 9A.[125]



[126]

Confirming what is shown above, the IEEE[127] dictionary defines "series circuit" as:

> A circuit supplying energy to a number of devices connected in series, that is, the same current passes through each device in completing its path to the source of supply.[128]

Dr. Zane testified that this is "a good description of a series circuit,"[129] and "is how I teach this in introductory electronics."[130] Dr. Zane also added the caveat that when you "apply that definition to this concept in a more complex circuit … the word 'same' in that definition wouldn't necessarily mean absolutely identical."[131] Lepro agrees with that caveat. Nonetheless, this IEEE definition should be adopted. It clearly distinguishes series from parallel, as the '577 patent does.[132] Moreover, how the definition applies to more complex, real-world circuits (*e.g.* deciding when two currents are "the same") is not properly addressed as part of claim construction, but as a factual question of infringement.[133]

Signify's arguments do not justify allowing the term "in series" to encompass "in parallel." At least two Federal Circuit decisions have distinguished series and parallel. In *ACS Hospital Systems, Inc.*

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[124] Ex. 5 (Dr. Zane Rough Tr.), 40:2-43:23, 46:13-47:10; Ex. 6 (Zane Depo. Ex. 7); *id.* at 44:23-46:12.
[125] Ex. 5 (Dr. Zane Rough Tr.), 51:11-54:21, Ex. 7 (Zane Depo. Ex. 8)
[126] *See* Ex. 6 (Zane Depo. Ex. 7), Ex. 7 (Zane Depo. Ex. 8).
[127] The Institute of Electrical and Electronics Engineers ("IEEE") is an organization of electrical engineers. Ex. 5 (Dr. Zane Rough Tr.) at 30:17-23.
[128] Ex. 1 (THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS (7th ed. 2000) at 1029; Ex. 5 (Dr. Zane Rough Tr.) at 31:10-24, 32:23-25.
[129] Ex. 5 (Dr. Zane Rough Tr.) at 37:21-23; *see id.* at 34:4-38:15,
[130] Ex. 5 (Dr. Zane Rough Tr.) at 47:25-48:1.
[131] Ex. 5 (Dr. Zane Rough Tr.) at 48:5-20.
[132] '577 patent at 3:43-45.
[133] *Neomagic Corp.*, 287 F.3d at 1074; *Markman*, 52 F.3d at 976.

v. Montefiore Hospital, the Federal Circuit recognized that series and parallel are opposites, finding that a prior art circuit did not have the claimed "on" function, but would have if "RL-2 and S1D [had] been wired in series, instead of in parallel."[134] Similarly, in *In re Power Integrations, Inc.*, the Federal Circuit contrasted connecting "in series" with connecting "in parallel."[135]

Signify first relies (at 37) on a general-usage dictionary, Webster's New World College Dictionary (4th ed. 1999). Generally, technical dictionaries are more useful than general-usage dictionaries to show how those skilled in the art understand a term.[136] Still, the Webster's definition cited by Signify is consistent with the IEEE definition (though Signify's characterization of that definition is not):

> 5. *Elec*. an arrangement of devices in a circuit, in which the current flows sequentially through a series of components: used chiefly in the phrase in series: cf. PARALLEL (sense 7).[137]

This Webster's definition does not say "the same current" as the IEEE definition and other technical dictionaries do.[138] However, by using the definite article "the" it conveys the same point. It also confirms that "series" does not encompass "parallel."

Signify's arguments about Figure 1 (at 38-39) are wrong for two reasons. First, as the '577 patent explains and Signify admits, "inductances Ls and Lm are not actual elements."[139] Instead, they are used for equivalent-circuit modeling of the actual circuit. Signify does not argue (nor could it) that the "series" limitations in the claims relate to equivalent-circuit elements. Thus, Figure 1's depiction of equivalent-circuit elements do not suggest that the '577 patent has redefined the term "in series" to include devices that are in parallel. Second, the specification does not support Signify's assertion (at 39) that element 8a is "the model of the primary winding of the transformer." To the contrary, the specification describes the primary winding as modeled by "Ls" and "Lm."[140] Thus, the premise of Signify's argument is wrong.

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[134] 732 F.2d 1572, 1581 fn. 19 (Fed. Cir. 1984).
[135] 884 F.3d 1370, 1376 (Fed. Cir. 2018).
[136] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005); *see also id.* at 1320-1324.
[137] Dkt. No. 54-17 at 4.
[138] Ex. 8 (MODERN DICTIONARY OF ELECTRONICS (7th ed. 1999) at 682 ("series circuit—1. A circuit in which resistances or other components are connected end to end so that the same current flows throughout the circuit.")
[139] '577 patent, 3:24-25.
[140] *Id.* at 3:21-26; 4:12-13;

Similarly, Signify's arguments about Figure 2 (at 40-41) are wrong because they are about a control circuit, not the claim elements that are "in series." In claim 1, the "in series" limitations are:

> a transformer, a primary winding of the transformer and the resonant capacitor being coupled in series to the set of input terminals;
>
> … wherein the buffer circuitry comprises an inductor connected in series with the set of output terminals[141]

These limitations do not say anything about a control circuit. The control circuit is first mentioned in claim 7, which says nothing about coupling or connecting in series.[142] Thus, the claims do not apply any "in series" requirement to the control circuit. Nor does the specification ever describe the control circuit as being "in series" with anything else. Accordingly, Figure 2's depiction of a control circuit that is in parallel with the output terminals 20a and 20b does not suggest that the patent has changed the meaning of "in series." Additionally, Signify does not argue (nor could it) that the control circuit's voltage-measurement draws anything more than an insignificant amount of current.

Finally, Signify argues (at 41) about "leakage inductance" and "parasitic capacitance," citing Dr. Zane's statement in his declaration that "the current entering the primary winding (8a) will not equal the current exiting the primary winding (8a)."[143] But again, that is not a reason to conclude that the '577 patent has redefined the term "in series." Such a redefinition must be "clearly set forth" in the specification.[144] The "additional path for current" that Signify and Dr. Zane assert is present is not shown in the patent, and thus does not meet this standard.

VII. THE '253 PATENT

A. "a heat sink comprising an upper surface and a lower surface"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning	"the heat sink having a surface at a top end and another surface at a bottom end."

The dispute between the parties with respect to the limitation at issue - "a heat sink comprising an upper surface and a lower surface" – is not whether terms such as "heat sink," "an upper surface" and "a lower surface" have plain and ordinary meanings. Rather, the dispute is what the "plain and ordinary

[141] *Id.* at claim 1.
[142] *Id.* at claim 7.
[143] Dkt. 54-16 (Zane Decl.) at ¶ 49.
[144] *Apple Inc. v. Wi-LAN Inc.*, 25 F.4th 960, 967 (Fed. Cir. 2022).

meaning" of the limitation is. Defendants' proposed construction brings clarity and resolves potential disputes on the scope of this limitation.[145]

Defendants' proposal associates the "upper surface" of a heat sink to the "surface at a top end" of the heat sink, and the "lower surface" of a heat sink to the "surface at a lower end" of the heat sink. Defendants' proposal implicitly requires that the claimed heat sink have some thickness to allow for both an upper surface and a lower surface. A sheet metal would not constitute "a heat sink comprising an upper surface and a lower surface" under Defendants' proposal even though it can dissipate heat. Because Signify rejects Defendants' proposal, Signify appears to deem any type of heat sink, regardless of its shape or configuration, to be within the scope of this limitation. Such interpretation would be erroneous because it makes the term "comprising an upper surface and a lower surface" superfluous.

Because the claimed terms "upper surface" and "lower surface" do not appear anywhere in the detailed description, it is appropriate for the Court to "rely heavily on the written description for guidance as to the meaning of the claims."[146] The support for the limitation must come from the words, structures, figures, and diagrams of the '253 patent.[147] A study of the specification made it clear that the terms "upper surface" and "lower surface" refer to surfaces at the top and bottom ends of a heat sink. For example, when describing Figure 8 (reproduced below), the specification states that "[f]ins 311 extend substantially perpendicular from the bottom surface 310a, towards a top end 310e of the heat sink 310."[148]

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[145] *Konami Gaming, Inc. v. Marks Studios, Ltd. Liab. Co.*, No. 2:14-cv-01485-JAD-CWH, 2017 U.S. Dist. LEXIS 116669, at *18-19 (D. Nev. July 25, 2017) (J. Dorsey) ("when the parties dispute the scope of a claim term, it is my job—not the fact-finder's—to settle that dispute. A determination that a claim term needs no construction or has the plain and ordinary meaning may be inadequate . . . when reliance on a term's ordinary meaning does not resolve the parties' dispute.") (internal quotation marks and citation omitted).

[146] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (*citing* 37 C.F.R. § 1.75 to emphasize that "the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description").

[147] *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1345 (Fed. Cir. 2016) (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997)).

[148] '253 Patent, 7:35-37.

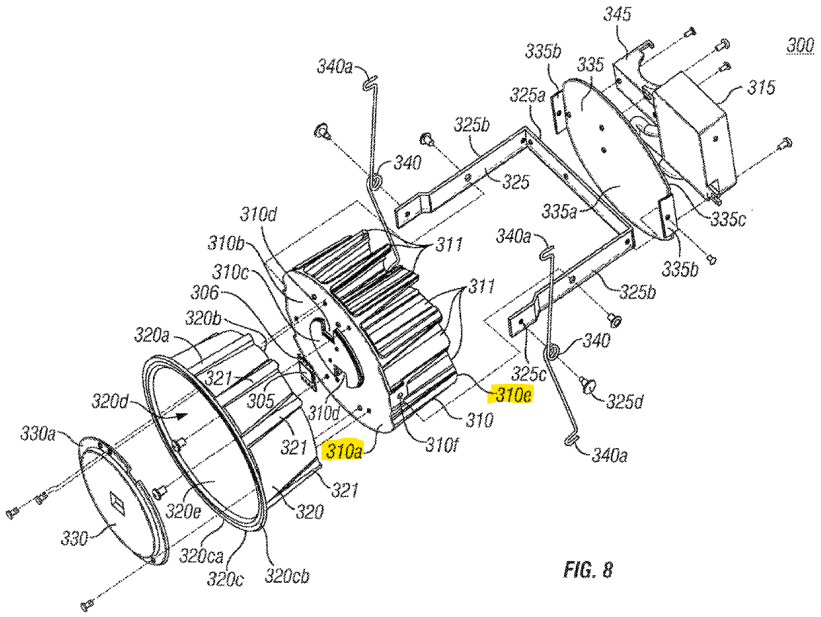

FIG. 8

Figure 8 shows that fins 311 extend from a surface at the bottom end (310a) of heat sink 310 to a surface at the top end (310e) of heat sink 310. Furthermore, the Applicant discloses a "bottom surface" that is non-planar.[149] This feature is claimed in dependent claim 23.[150] The claimed term "lower surface" is therefore commensurate in scope with the specification's discussion of the "bottom surface."[151] It is also apparent based on the specification that the claimed "upper surface" is referring to the surface at the top end of the disclosed heat sink, even though the word "surface" is not called out *haec verba* in the specification.

Finally, Plaintiff contends (at 44) that Defendants' proposal is wrong because the terms "upper surface" and "top end" would have no distinct meaning under Defendants' claim construction proposal. This argument is a red herring because Defendants' proposal would have construed the term "upper surface" as "a surface at a top end." Defendants' proposal does not conflate the term "upper surface" with "top end" as Signify argues. For the foregoing reasons, the Court should adopt Defendants'

[149] '253 Patent at 7:24-27 ("the bottom surface 310a of the heat sink 310 includes a substantially round member 310b with a protruding center member 310c on which the LED package 305 is mounted.)
[150] *Id.* at 16:23-24 ("The downlight module of claim 16, wherein the lower surface of the heat sink is non-planar").
[151] *Accord Nichia Corp. v. Everlight Ams., Inc.*, 855 F.3d 1328, 1335-36 (Fed. Cir. 2017) (it is not a hard-and-fast rule that "if different words are used in the claim and specification, then we must read that distinction as an intended difference.").

construction of the limitation "a heat sink comprising an upper surface and a lower surface," i.e., a heat sink has a surface at a top end and another surface at a bottom end.

VIII. THE '320 PATENT

A. "configured for generating light along an optical axis"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning	"the beams from one or more light-emitting diodes are set up to be parallel to a single optical axis"

The primary issue with Signify's position is not its misguided analysis of the difference between "set up" and "configured for" or their false assertion that "Defendants' proposal [is] to require a collimator." Rather, the issue is that Signify's position does not address the requirement that the claims be directed to a *singular* optical axis. A light device having light-emitting diodes that are "configured for generating light along [a single] optical axis" would necessarily require configuring the LED beams to be parallel to that optical axis, as explained in detail below.

First, while the recitation of "an optical axis" by itself would not necessarily limit a claim to one optical axis, both the subsequent limitations referring back to the optical axis and the teachings of the specification require the optical axis to be singular. The claimed optical axis is a reference point for (1) "one or more metallic components . . . arranged below a virtual plane drawn orthogonal to the optical axis" as recited in claim 1, (2) "a radiating part [of the antenna] substantially extending in one single plane being substantially perpendicular to the optical axis" as recited in claim 4, and (3) "a second printed circuit board substantially perpendicular to the first printed circuit board and the optical axis" as recited in claim 7. A single optical axis would be required to be the reference point for each of these claimed elements. If the claimed light-emitting diodes were configured to generate light along different (i.e., non-parallel) optical axes, the claims would be indefinite as it would be unclear which of these multiple axes is the reference point for the numerous claim elements that refer back to "the optical axis."

Second, Defendants' interpretation is consistent with the '320 specification. Figure 1 of the '320 patent shows a single optical axis (OA). The embodiments disclosed in Figures 2-4 use a collimator to achieve a single optical axis as well.[152]

[152] *See id.* at 5:35-40, 6:2-7.

Nothing in the written description of the '320 patent suggests that the claimed lighting device may have multiple optical axes. Instead, the specification presents the optical axis as a single reference point for other elements. For example, the detailed description states that "the invention provides a lighting device . . . comprising a light source LS. e.g. LEDs, for producing light along an optical axis OA" and "metallic components, including the heat sink (HS) . . . are arranged below a virtual plane (VP) drawn orthogonal to *the* optical axis (OA) and going through the antenna (A)."[153] It is abundantly clear that the specification only contemplates a single optical axis. As a result, the claim language, when interpreted in light of the specification, is also limited to a single optical axis.

As noted above, light-emitting diodes that are "configured for generating light along [a single] optical axis" would necessarily emit beams parallel to the optical axis. The term "along" means "on a line or course parallel and close to."[154] Thus, by reciting "light-emitting diodes configured for generating light along [a single] optical axis," claim 1 requires that the beams from one or more light-emitting diodes be set up to be parallel to a single optical axis.

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[153] '320 Patent, 7:32-45.
[154] Ex. 10 (AMERICAN HERITAGE COLLEGE DICTIONARY (2002)).

B. "the heat sink forming at least a portion of an outer enclosure"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning	"at least a segment of an outer enclosure is formed by the heat sink such that the heat sink is exposed to the outside"

As a preliminary matter, the meaning for the term "outer" is readily understood by even a lay person to mean "located on the outside, external."[155] Signify's brief (at 48-49) does not appear to dispute this definition.

The parties' dispute rather is whether the limitation reciting "at least a portion of an outer enclosure" requires that the heat sink, as a "portion" of the outer enclosure, be exposed to the outside. In a similar situation, the Federal Circuit limited construction to the only disclosed embodiment of "efficient mixing" because it "casts light on what efficient mixing is and [] enables one of ordinary skill in the art to achieve the objects of the claimed invention."[156] As with the construction of "efficient mixing," defendant's proposal accurately conveys the meaning of the phrase "a portion of an outer enclosure" as understood by a POSITA in light of how the heat sink and the outer enclosure features are taught in the specification because every reference to the outer enclosure in the specification and drawings (Figures 1, 2 and 5 are reproduced below) reinforces that, in forming "a portion of the outer enclosure," the heat sink is a part of the enclosure being exposed to the outside. In other words, all the embodiments depicted in the patent figures consistently show the heat sinks form a "part" of the outer enclosure exposed to the outside, as shown in Figures 1, 2 and 5 (where "HS" stands for Heat Sink):

[155] *See* Ex. 10 (AMERICAN HERITAGE COLLEGE DICTIONARY (2002)) (the term "outer" means "located on the outside, external."); Ex. 11 (the NEW OXFORD AMERICAN DICTIONARY (2005)) (the term "outer" means "outside, external.").

[156] *Medicines Co. v. Mylan, Inc.*, 853 F.3d 1296, 1309 (Fed. Cir. 2017).

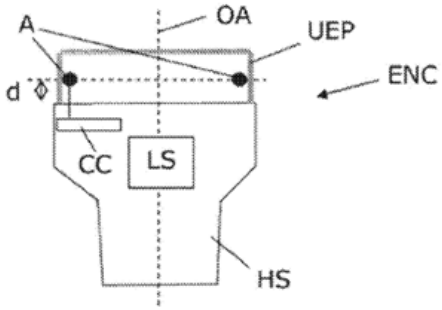

Fig 1

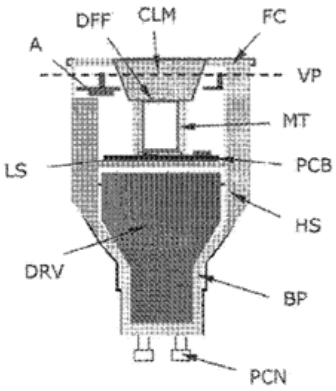

Fig 2

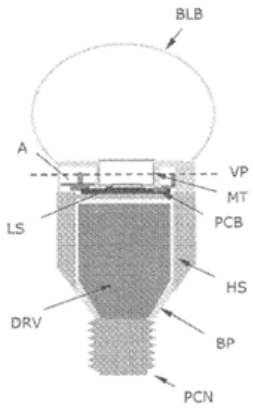

Fig 5

See also '320 patent at 4:53-57 ("FIG. 1 illustrates a simple sketch of a section through a lighting device embodiment with *an outer enclosure ENC in the form of an upper and a lower part*, wherein the lower part is a metal housing HS and the upper part UEP is a non-metallic material, e.g. a polymeric material.); 5:23-27 ("A middle part of the outer enclosure [depicted in Fig. 2] is in form of a metal housing HS with a rib outer structure and connected to the heat sink so as to effectively transport heat from the light source LS.").

Thus, this case is like *Nystrom v. Trex Co.*, where the Federal Circuit found that the term "board" was limited to "wood cut from a log" because "[t]hroughout the written description, Nystrom consistently used the term "board" to describe wood decking material cut from a log."[157]

In addition to matching all disclosed embodiments, Defendants' construction is further consistent with the stated objective of the '320 Patent to provide "a very effective heat sink" to remove the heat generated by the light-emitting diodes.[158] Thus, it is "entirely appropriate to limit the term" the heat sink forming at least a portion of an outer enclosure "to the sole portion of the specification that adequately discloses it to the public."[159]

For the same reasons above, Defendants proposes to construe the phrase "at least a *segment* of an outer enclosure is formed by the heat sink such that the heat sink is exposed to the outside" to avoid any ambiguity in the scope of the claim term "portion." Because Signify opposes a construction where the heat sink is required to be exposed to the outside, it appears that Signify is contending that the inner

[157] 424 F.3d 1136, 1144 (Fed. Cir. 2005).
[158] '320 Patent, 2:3-4.
[159] *See Medicines Co.*, 853 F.3d at 1309.

layer of a multi-layer "outer enclosure" structure would meet this limitation. To analogize, under Signify's "plain and ordinary meaning" construction, a pepperoni topping would constitute a "portion" of a pizza. Under the Defendants' construction, the pepperoni topping does not constitute a "portion" of a pizza, but a slice ("segment") does. Only Defendants' construction is consistent with the teachings of the '320 Patent because all the embodiments depicted in the patent figures consistently show the heat sinks form a segment of the outer enclosure exposed to the outside, not an inner layer shielded from the outside.

IX. CONCLUSION

For the reasons stated above, Lepro's constructions should be adopted.

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Respectfully submitted,

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